

Application No. 10/023,265

Docket No. 2000U057.US

Reply to Office Action Dated August 24, 2004

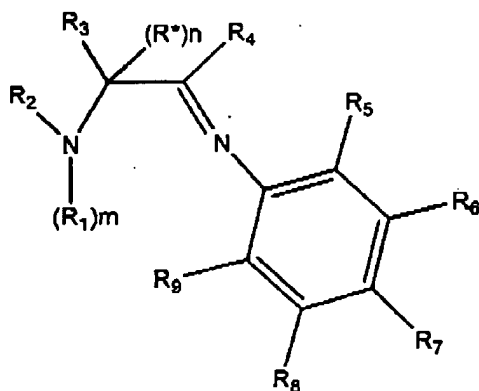
Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-13 (Cancelled)

14. (Currently amended) A polymerization catalyst comprising a combination of at least one activator and a reaction product of a transition metal compound with a tridentate ligand generating composition represented by a formula of:



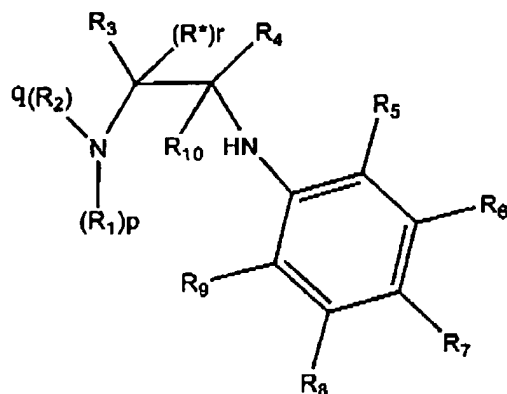
(I)

or

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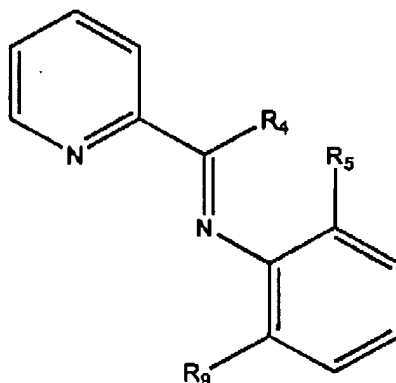
wherein: R_2 and R_3 are hydrocarbyl radicals or substituted hydrocarbyl radicals, $R_5 - R_8$ are each, independently, hydrogen, a hydrocarbyl radical or a substituted hydrocarbyl radical; one of R_1 , R_2 , R_3 , R_4 , or R_9 is a radical that contains a Group 16 atom and R^* is a hydrocarbyl radical or substituted hydrocarbyl radical when R_1 is a radical that contains a Group 16 atom, otherwise R_1 , R_2 , R_3 , R_4 , R_9 and R^* are each, independently, hydrogen, a hydrocarbyl radical or a substituted hydrocarbyl radical; and for formula (I) m and n are values of 0 or 1, and when m is 0 and n is 0 R_2 and R_3 may be joined together to form an aromatic ring structure, and when n is 0 and m is 1 R_2 and R_3 may be joined together to form ring structures; any two adjacent groups of R_5 to R_9 may be joined together to form ring structures; for formula (II) R_1 through R_9 and R^* are as explained above and R_{10} is hydrogen, a hydrocarbyl radical or a substituted hydrocarbyl radical; and p , q and r are values of 0 or 1 wherein p is 0 only when q is 1 and r is 0; wherein the radical that contains a Group 16 atom is a ketone.

15. (Original) The polymerization catalyst of claim 14 wherein the tridentate ligand generating compound is represented by the formula:

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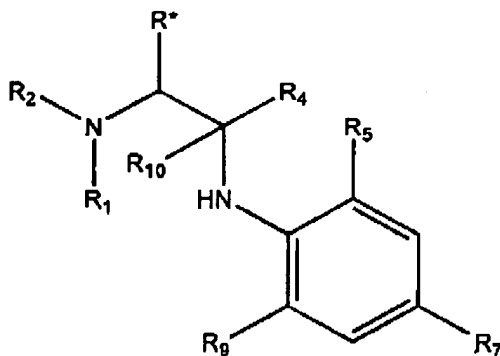
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wherein R_4 is a radical that contains an oxygen based functional group selected from an alcohol, an aldehyde, a ketone, or an epoxide and R_5 and R_9 are alkyl radicals.

16. (Cancelled)

17. (Original) The polymerization catalyst of claim 14 wherein the tridentate ligand generating compound is represented by the formula:



wherein R_1 is a radical that contains an oxygen based functional group selected from an alcohol, an aldehyde, a ketone, an epoxide and R^* , R_2 , R_4 , R_5 , R_7 , R_9 , and R_{10} are hydrocarbyl radicals.

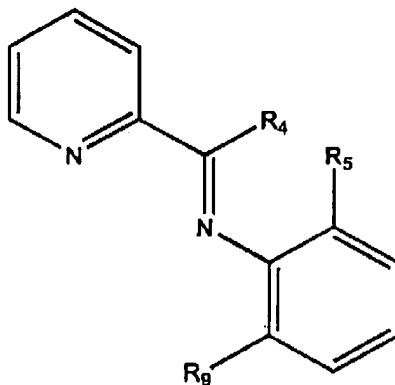
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18. (Original) The polymerization catalyst of claim 14 wherein the transition metal compound is of a Group 4 metal.
19. (Original) The polymerization catalyst of claim 18 wherein the transition metal is Zr.
20. (Currently amended) The polymerization catalyst of claim 14 wherein the radical that contains the Group 16 atom, when bonded to the transition metal, forms a ring of 5 to 8 atoms.
21. (Currently amended) The polymerization catalyst of claim 14 wherein the radical that contains the Group 16 atom, when bonded to the transition metal, forms a ring of 5 to 7 atoms.
22. (Currently amended) The polymerization catalyst of claim 14 wherein the radical that contains the Group 16 atom, when bonded to the transition metal, forms a ring of 6 atoms.
23. (Cancelled)
24. (Previously presented) The polymerization catalyst of claim 14 wherein the radical that contains a Group 16 atom is an alcohol.
25. (Original) The polymerization catalyst of claim 14 wherein the a Group 16 atom is a sulfur based functional group.
- 26-27 (Cancelled)
28. (New) A polymerization catalyst comprising a combination of at least one activator and a reaction product of a transition metal compound with a tridentate ligand generating composition represented by a formula of:

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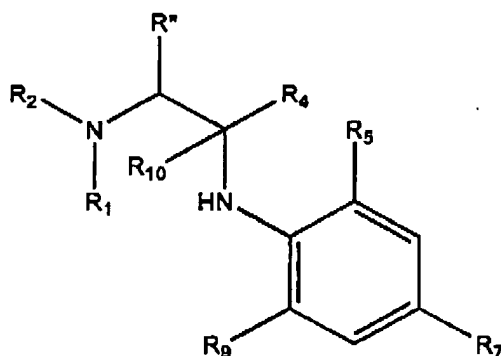
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wherein: wherein R_4 is a radical that contains an oxygen based functional group selected from an alcohol, an aldehyde, a ketone, or an epoxide and R_5 and R_9 are alkyl radicals.

29. (New) A polymerization catalyst comprising a combination of at least one activator and a reaction product of a transition metal compound with a tridentate ligand generating composition represented by a formula of:



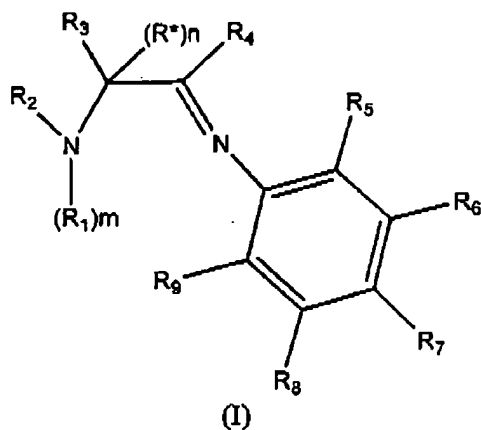
wherein R_1 is a radical that contains an oxygen based functional group selected from an alcohol, an aldehyde, a ketone, an epoxide and R^* , R_2 , R_4 , R_5 , R_7 , R_9 , and R_{10} are hydrocarbonyl radicals.

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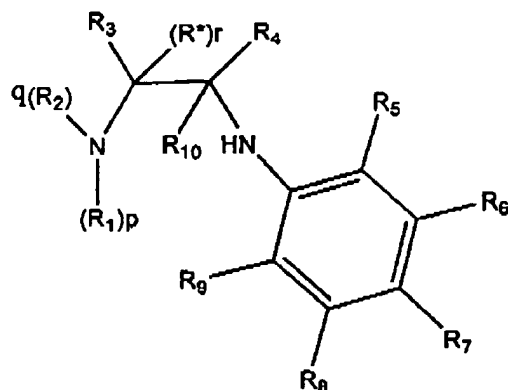
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30. (New) A polymerization catalyst comprising a combination of at least one activator and a reaction product of a transition metal compound with a tridentate ligand generating composition represented by a formula of:



or



wherein: R_2 and R_3 are hydrocarbyl radicals or substituted hydrocarbyl radicals, $R_5 - R_9$ are each, independently, hydrogen, a hydrocarbyl radical or a substituted hydrocarbyl radical; one of R_1 , R_2 , R_3 , R_4 , or R_9 is a radical that contains a Group 16 atom and R^* is a hydrocarbyl radical or substituted hydrocarbyl radical when R_1 is a radical that contains a Group 16 atom, otherwise R_1 , R_2 , R_3 , R_4 , R_9 and R^* are each, independently, hydrogen, a hydrocarbyl radical or a substituted hydrocarbyl radical; and for formula (I) m and n are values of 0 or 1, and when m

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is 0 and n is 0 R₂ and R₃ may be joined together to form an aromatic ring structure, and when n is 0 and m is 1 R₂ and R₃ may be joined together to form ring structures; any two adjacent groups of R₅ to R₉ may be joined together to form ring structures; for formula (II) R₁ through R₉ and R* are as explained above and R₁₀ is hydrogen, a hydrocarbyl radical or a substituted hydrocarbyl radical; and p, q and r are values of 0 or 1 wherein p is 0 only when q is 1 and r is 0; wherein the a Group 16 atom is a sulfur based functional group.

31. (New) The polymerization catalyst of any one of claims 28, 29 or 30, wherein the transition metal compound is of a Group 4 metal.
32. (New) The polymerization catalyst of any one of claims 28, 29 or 30, wherein the transition metal is Zr.
33. (New) The polymerization catalyst of any one of Claims 14, 28, 29 or 30, further comprising an organic or inorganic support.